

# HOPE'S GLASS ROOFING



CATALOGUE NO. 255 · JUNE 1950





16

# HOPE'S

## GLASS

## ROOFING

*and Lantern Lights*



CATALOGUE No. 255 JUNE, 1950

HENRY HOPE & SONS LTD  
SMETHWICK, BIRMINGHAM

# HENRY HOPE & SONS LTD.

*Head Office & Works:* SMETHWICK, BIRMINGHAM, 40  
*Telephone:* SMEthwick 0891 *Telegrams:* Conservatory Telex Birmingham

## LONDON

17 Berners Street, W.1  
*Telephone:* MUSEum 8412 *Telegrams:* Buntline Rath

## BRISTOL

3 Berkeley Square, 8  
*Telephone:* Bristol 21652

## CAMBRIDGE

44a Sidney Street  
*Telephone:* Cambridge 4773

## GLASGOW

1 Blythswood Square  
*Telephone:* DOUglas 4170

## LEEDS

Provincial House, Albion Street  
*Telephone:* Leeds 20708-9

## LIVERPOOL

49 Rodney Street  
*Telephone:* Liverpool Royal 1594

## MANCHESTER

Westminster Bank House, 3 York Street  
*Telephone:* DEAnsgate 3991-2

## NEWCASTLE-ON-TYNE

7 Matlock Gardens  
Westerhope

## PLYMOUTH & EXETER

Oaklands, Honiton, Devon  
*Telephone:* Honiton 279

## SOUTHAMPTON

53 Bassett Green Road, Swaythling  
*Telephone:* Southampton 57452

## SWANSEA

Exchange Buildings  
*Telephone:* Swansea 55342

## BELFAST

Scottish Temperance Buildings, 16 Donegall Square South  
*Telephone:* Belfast 22687

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# HOPE'S



SMETHWICK  
BIRMINGHAM

## *Introduction*

**T**his catalogue contains specifications and details of our lead-clothed steel and aluminium glazing bars.

Our lead-clothed steel glazing bars are well known, having been used for many years on all kinds of buildings throughout the world, where they have been proved to be both watertight and permanent under all extremes of climate.

We have recently reglazed the blitzed roof of Snow Hill Railway Station, Birmingham, which was originally glazed by us in 1910. *After nearly 40 years only bars damaged by bombs have been replaced.*

The shortage and high cost of lead have obliged us to investigate the use of aluminium, and we are now offering HOPE'S Aluminium Bars as a reliable alternative. These have been designed to carry the same loads as our steel bars and may be used with confidence in most situations.

Where buildings are exposed to a corrosive atmosphere we are always glad to advise on the type of glazing most suitable for the situation.



# HOPE'S *Lead-clothed* STEEL GLAZING BAR

Made in two sizes, B1 for all spans up to 7' 6", and O3 for spans from 7' 6" to 11' 0", as shown on pages 10 and 11.

Bars are of rolled steel, cleaned and dipped in our special red oxide paint, stoved at high temperature, and enclosed in a jointless lead sheath sealed at both ends.

The bulb on the top of the bar adds strength and rigidity, and together with the lead ridge saves the sheath from damage when planks are placed across the bars for glass replacement or cleaning.

Glass is bedded on oiled asbestos cords laid in grooves in the lead sheath, ensuring perfect seating.

The wings of the sheath are dressed on to the glass separately, making a sound weatherproof cover.

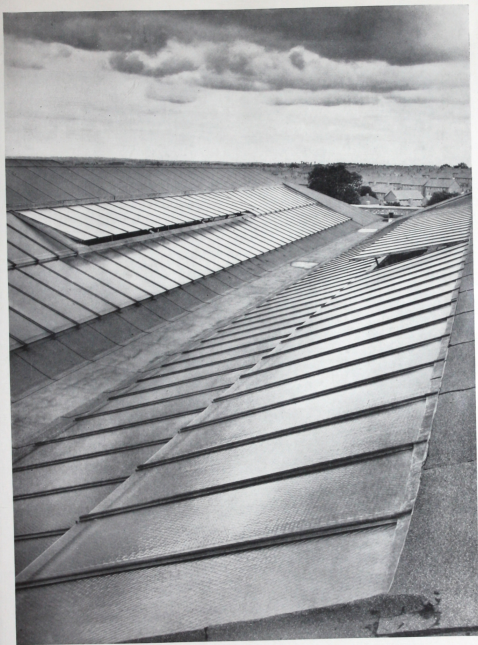
Glass is prevented from slipping by a brass stop and strong brass bolt at the foot of the bar (see page 10).

*Fixing* is by means of galvanized steel plates, with either one or two fixing holes (see page 11). We recommend the two-hole plate, for which two  $\frac{3}{8}$ " dia. holes at 2" cross-centres are required in steelwork. Standard back-marks for drilling purlins will be assumed unless otherwise stated.

Bars are usually spaced at 2' 0 $\frac{1}{2}$ " centres for 24" glass. Minimum recommended pitch for patent glazing is 20°.

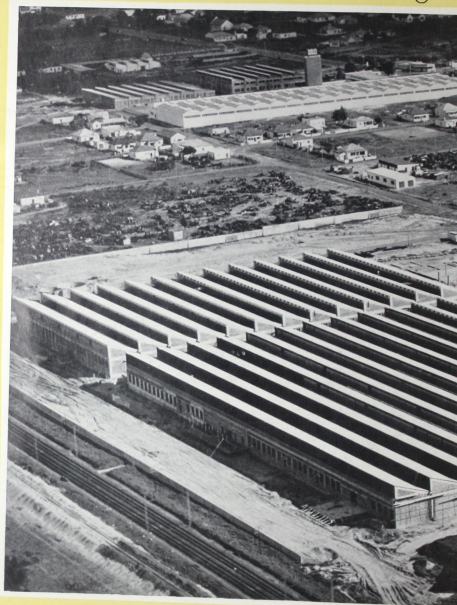
*Warning.* Lead is actively attacked by both acetic and tannic acids, and we should be notified of projects where these acids may be met.





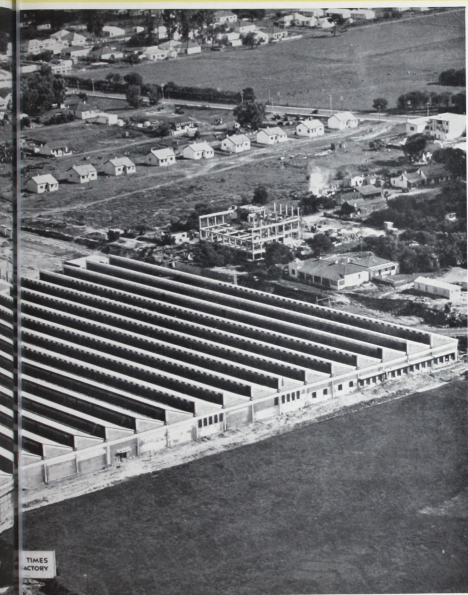
CITY OF BIRMINGHAM OMNIBUS DEPOT, QUINTON  
*GATELEY & PARSONS, FF.R.I.B.A., CHARTERED ARCHITECTS*

# HOPE'S Patent Glazing w



CAPE TIMES LTD.,  
*Architect: James Norris, F.R.I.B.A.*

vinylad-clothed steel glazing bars



VILLE, CAPE TOWN

Factors: Lewis Construction Co. (S.A.) Ltd.

# HOPE'S *Lead-Clothed* STEEL GLAZING BAR

**B1 Bar**



FOR SPANS  
UP TO 7' 6"

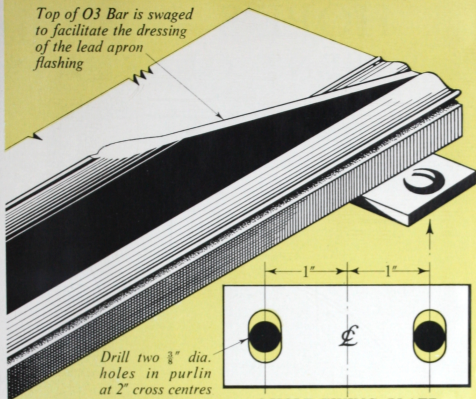
*Full Size*



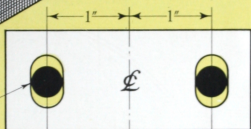
BRASS GLASS STOP  
AND BOLT

Glass cut  
away to show  
draught fillet  
secured to  
fixing plate  
by clip

*Top of O3 Bar is swaged to facilitate the dressing of the lead apron flashing*



*Drill two  $\frac{3}{8}$ " dia. holes in purlin at 2" cross centres*



**2-HOLE FIXING PLATE**  
with slotted holes to allow for  
variations in steelwork  
**SINGLE-HOLE plates also available**

**O3 Bar**



**FOR SPANS  
UP TO 11' 0"**

**Full Size**



# HOPE'S *Vertical* PATENT GLAZING

It has long been the practice in factories and other industrial buildings to install stretches of vertical patent glazing where the structural conditions are appropriate.

Ordinary rough cast roofing glass gives a dreary effect both inside and out. We recommend the use of 32 oz. clear sheet or even  $\frac{1}{4}$ " plate glass, which gives a bright and cheerful appearance and may be used with effect on buildings of some architectural importance.

HOPE'S side lighting allows every shower of rain to wash the glass down and does not require the amount of cleaning necessary on all ordinary side lights.

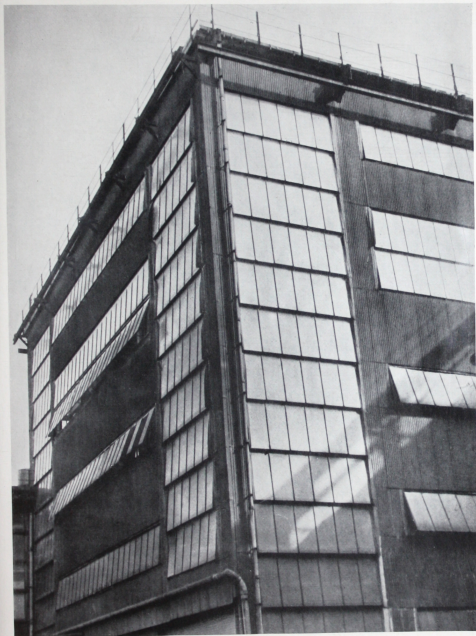
Ventilation can be provided in considerable variety and we are always pleased to submit schemes including mechanical or electrical operation.

Typical examples are shown on pages 13, 15 and 16.





# HOPE'S *Vertical Patent Glazing*



I.C.I. ALKALI DIVISION, NORTHWICH  
*Side-wall glazing with gear-operated opening lights*

# HOPE'S

## *Patent Glazed*

### WINDOWS

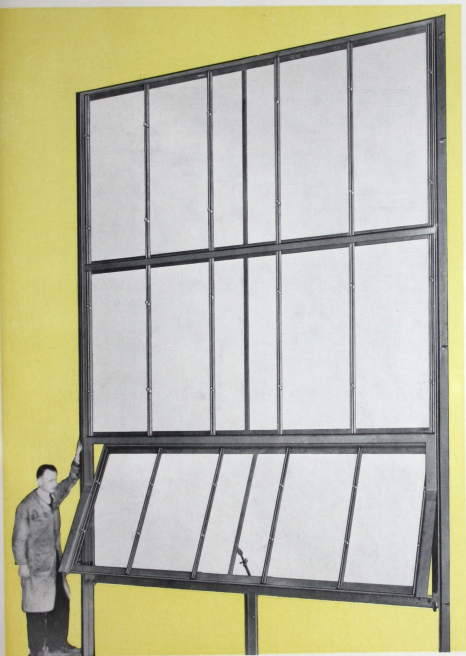
The illustration on the opposite page shows a type of window which we have recently developed for one of the largest producers of industrial chemicals.

The basis of construction is a very strong steel frame hot-dip galvanized after manufacture with vertical lead-clothed patent glazing bars on the outside. We have developed this in conjunction with the Company's engineers, and it will be observed that ventilation is obtained by a hand-operated swinging window 10' wide.

This system eliminates the use of operating gear, which is always sensitive to corrosion from chemical atmospheres, but it must be observed that for hand operation the ventilators must be within reach.

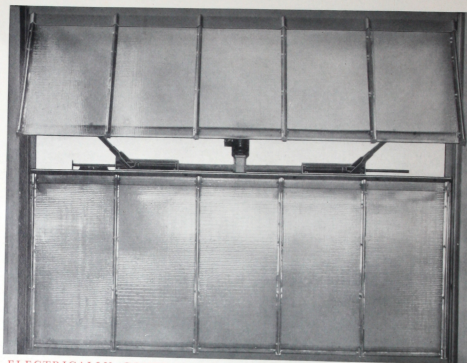
When clear glass is used this type of window gives a bright and cheerful effect to the building.

The large swinging ventilators are hung on chrome steel pins working in cast bronze bearings, and the opening apparatus provides for setting the window open from 30° to the closed position.



WINDOW 10ft. WIDE, *for* CHEMICAL WORKS

*Glazed with HOPE'S lead-covered Patent Glazing Bars*



ELECTRICALLY CONTROLLED

This illustrates another form of ventilator in HOPE'S Vertical Patent Glazing operated by twin-screw gear. It will be noted that this can be operated by hand if within reach, or electrically controlled if out of reach.



HAND  
OPERATED

# VENTILATION

---

## OPENING LIGHTS

---

### GEARING



MONTAGUE BURTON'S CLOTHING FACTORY, WORSLEY

# *Ventilation*

Experience over many years in our own engineering shops has convinced us that no system of forced ventilation, however efficient, is as satisfactory to the man on the bench as natural ventilation; the open window or roof light which he can see for himself.

Opening lights of various types, from a single pane to continuous ventilators 300 ft. long, can be provided in HOPE'S Patent Glazing. Operation is usually by shaft and lever gearing for the smaller ventilators and tension rod gearing (with either electrical or hand control) for the larger ones; typical details are shown on pages 20-22, but we shall always be glad to submit schemes to architects and engineers for special requirements.

We recommend large continuous ventilators for long stretches of glazing rather than a quantity of small ones.

All our gearing is of our own design and made in our own factory. We were the pioneers of the electrically controlled opening light whereby long stretches of glass roofing can be operated by pressing a button. This allows the management to control shop ventilation.

*Fixing.* HOPE'S gearing should always be fixed by our own men. We cannot accept responsibility for faults unless our own men do the work.

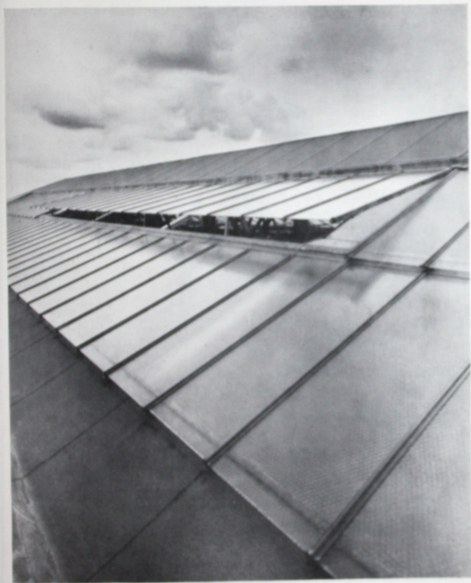
*Hope's Sliding Roof Lights* provide rapid ventilation for foundries, laundries, hardening or pickling shops, or any building where great quantities of steam or fumes are released from time to time. See pages 23-26.



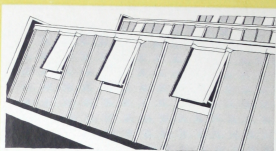
# HOPE'S

## CONTINUOUS OPENING LIGHTS

OPERATED BY ELECTRICALLY CONTROLLED GEARING





# HOPE'S *Single Tension* for SINGLE LIGHT VENTILATORS



OUTSIDE AND INSIDE VIEWS



## MAXIMUM SIZES

| TYPE of ROOF   | No. of LIGHTS | MAX. SIZE of LIGHTS | MAX. RANGE | OPERATION                              |
|--|---------------|---------------------|------------|--|
| NORTH LIGHT<br> | 16 single     | 4'0" x 2'0"         | 160' 0"    | By hand rope or chain, or electrically |
|  | 8 double      | 4'0" x 4'0"         | 160' 0"    |  |
| SPAN ROOF<br>   | 10 single     | 4'0" x 2'0"         | 100' 0"    |  |
|  | 5 double      | 4'0" x 4'0"         | 100' 0"    |  |

*The diagrams show the usual layout for ventilators; other groupings can be arranged within the size limits given.*

*Dimensions given are calculated on the use of our patent glazing bars and  $\frac{1}{4}$ " rough cast glass.*


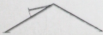
# Rod Ventilator Gearing for CONTINUOUS OPENING LIGHTS



OUTSIDE AND INSIDE VIEWS



## MAXIMUM SIZES

| TYPE of ROOF  | MAXIMUM RANGE   | OPERATION                                       |
|---|---|---|
| <p>NORTH LIGHT</p>  | One continuous opening light<br>30' 0" long by 4' 0" deep | By hand<br>rope or<br>chain, or<br>electrically |
| <p>SPAN ROOF</p>   | One continuous opening light<br>20' 0" long by 4' 0" deep |   |

The diagrams show the usual layout for ventilators; other groupings can be arranged within the size limits given.

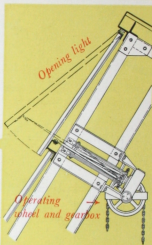
Dimensions given are calculated on the use of our patent glazing bars and  $\frac{1}{4}$ " rough cast glass.

NOTE: This gear is not recommended for operating ranges of swing or bottom-hung ventilators, in wall lights or sashes.




# HOPE'S *Double Tension Rod Ventilator Gearing* for CONTINUOUS OPENING LIGHTS



OUTSIDE AND INSIDE VIEWS



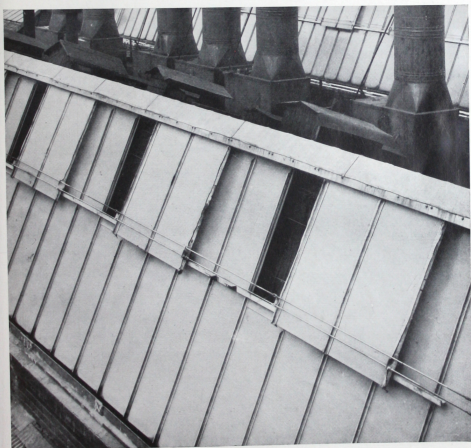
## MAXIMUM SIZES

| TYPE of ROOF  | MAXIMUM RANGE              | OPERATION    |
|---|----------------------------|--------------|
| NORTH LIGHT<br>      | 300' 0" long by 8' 0" wide | Electrically |
|   | 150' 0" long by 8' 0" wide | By hand      |
| SPAN ROOF<br>        | 200' 0" long by 8' 0" wide | Electrically |
|   | 100' 0" long by 8' 0" wide | By hand      |
| VERTICAL GLAZING<br> | 400' 0" long by 8' 0" wide | Electrically |
|   | 200' 0" long by 8' 0" wide | By hand      |

*Dimensions given are calculated on the use of our patent glazing bars and  $\frac{1}{4}$ " rough cast glass.*

# HOPE'S SLIDING ROOF LIGHTS

FOR RAPID VENTILATION



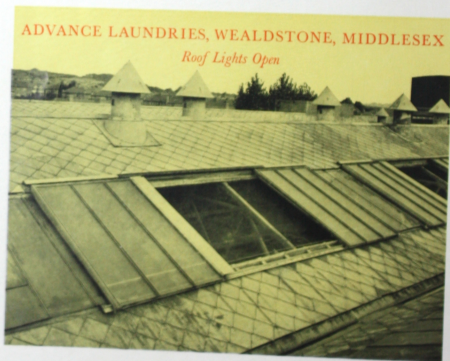
# HOPE'S *Sliding Roof Lights*

consist of units of HOPE'S Patent Glazing fitted into a rigid steel frame.

The frames are mounted on rollers at top and bottom, running on parallel tracks which are fitted to the roof, uncovering their own space as they open. Maximum size 7 ft. deep by 12 ft. wide.

*HOPE'S Sliding Roof Lights* are operated by electrical tension gear, thereby avoiding manual effort.

The gear is automatically controlled by limit switches and provides for any degree of opening up to 100% of the aperture.



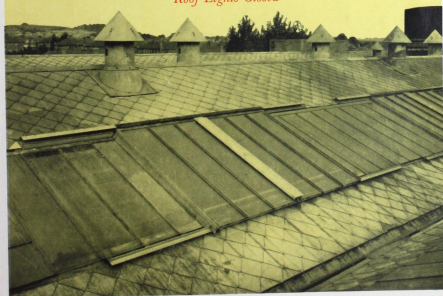


**HOPE'S Sliding Roof Lights** fulfil a need in many buildings where there are sudden accumulations of steam or fumes. At a touch of the electric push-button whole sections of the roof can be opened, allowing the steam to escape far more effectively than with any system of extract ventilators.

In showery weather they can be closed just as quickly, and when shut they provide a completely weatherproof roof. They have been installed with success in a number of buildings, and the "open-air" effect has been most popular with the work-people.

*This system is particularly valuable in foundries, hardening or pickling shops, laundries, etc.*

*All ventilators can be fully opened in 60 seconds*  
*Roof Lights Closed*



# HOPE'S

## *Sliding Roof Lights*

*have been supplied to the following:*

ADVANCE LAUNDRIES LTD., CHADWELL HEATH

ADVANCE LAUNDRIES LTD., WEALDSTONE

DAVIES & TIMMINS LTD., WALTHAMSTOW

DELTA METAL CO. LTD., BIRMINGHAM

FORD MOTOR CO. LTD., DAGENHAM

JOHN GARRINGTON & SONS LTD., DARLASTON

GEORGE GOODMAN LTD., BIRMINGHAM

HERCULES CYCLE & MOTOR CO. LTD., BIRMINGHAM

OXFORD CITY LAUNDRIES LTD., OXFORD

PREMIER ALUMINIUM CASTING CO. LTD., BIRMINGHAM

ROLLS-ROYCE LTD., DERBY

NOTES ON  
GLASS,  
DOMELIGHTS &  
WALKWAYS



# Glass

The following types of  $\frac{1}{4}$ " thick glass are most generally used.

$\frac{1}{4}$ " *Rough Cast Glass* is a translucent (although not transparent) glass.

$\frac{1}{4}$ " *Wired Cast Glass* is similar to the above but contains a hexagonal wire mesh which is embedded centrally during manufacture. The addition of wire mesh prevents or delays complete collapse of the glass after breakage and is an important safety factor.

$\frac{1}{4}$ " *Georgian Wired Cast Glass* is similar to  $\frac{1}{4}$ " rough cast, but has a wire reinforcement of square mesh electrically welded at each intersection, which provides a rather more pleasing appearance.

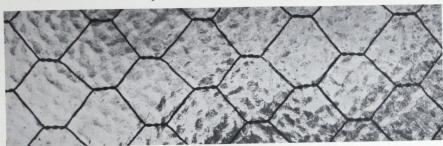
$\frac{1}{4}$ " *Polished Plate Glass* is a high-quality transparent glass and can also be supplied with the Georgian or hexagonal wire mesh reinforcement.

*32 oz. Clear Sheet Glass* may be used in sizes not exceeding 80" in length. This is not wire reinforced.

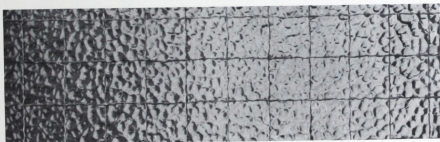
*Heat-absorbing Glass* These are tinted glasses which absorb the solar heat. Certain types of this glass also possess repellent properties towards flies and are therefore extensively used in abattoirs, etc. Maximum length in which these glasses are available is 90". They are not manufactured with wire reinforcement.



$\frac{1}{4}$ " ROUGH CAST GLASS



$\frac{1}{4}$ " WIRED CAST GLASS



$\frac{1}{4}$ " GEORGIAN WIRED CAST GLASS

## HOPE'S *Glass* DOMELIGHTS

are available in diameters ranging from 18" to 72" in increments of 2", and are fitted with hot-dip galvanized circular steel curbs for fixing to wood or concrete.



# *Walkways*

Recent amendments to the Factories Act, 1948, state that the repair, maintenance and cleaning of roof lights is a "building operation," and indicate that provision for safe cleaning is desirable.

We have therefore devised a method of applying a safe walkway on a patent glazed roof.

This is illustrated on the opposite page and consists of 3"  $\times$  3" rolled steel tees spaced over the roof principals and firmly secured to the purlin or ridge plate, also to the purlin or gutter plate at the foot of the light. These tee ribs are shaped to carry a footwalk and a railing, and it should be noted that they are not secured by holes through the patent glazing bars, but provide an independent structure which does not interfere with the repair or cleaning of the glass.

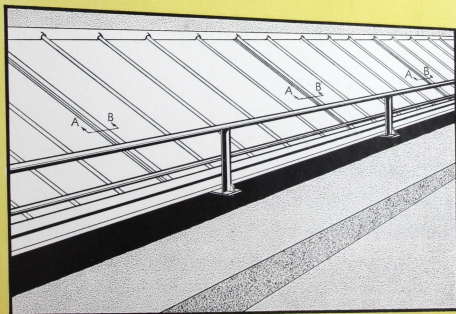
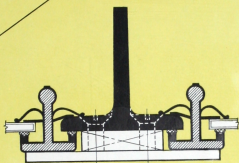
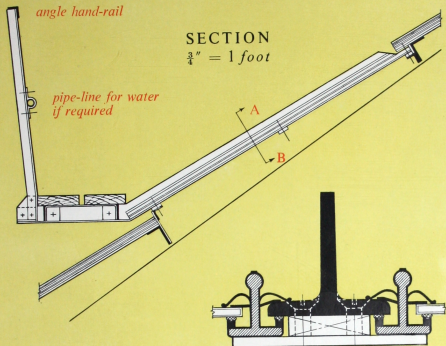
This design provides a safe and easy means of access to the roofs for cleaning or repair without detriment to the glazing.

Detailed drawings and estimates will gladly be supplied for new or existing roofs.





# WALKWAY *for* GLASS ROOFING

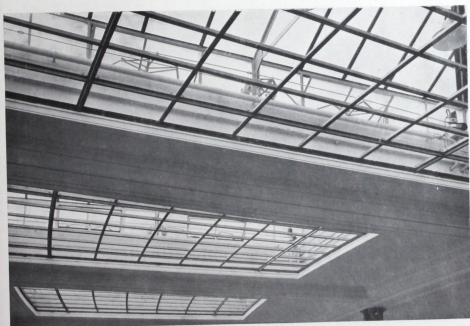




HOPKINSON ELECTRIC CO. LTD., CARDIFF

*Sir Percy Thomas & Son, Architects*

# HOPE'S LANTERN LIGHTS SKYLIGHTS & LAYLIGHTS



Birkenhead Central Library

*Gray, Evans & Crossley, Architects*



WALSALL GENERATING STATION, STAFFS  
*The British Electricity Authority, Midlands Division*



Huddersfield Public Library      *E. H. Ashburner, B.A., A.R.I.B.A., Architect*

# HOPE'S *Standard* LANTERN LIGHTS

are made to the same construction and quality as our purpose-made product, but in standard types and sizes listed on the next page.

Our lead-clothed steel glazing bars are used for the roof, which is secured by cleats to the upstand. Ridge and hips are special rolled steel sections with flanges to carry glazing bars and glass and a bulb top which provides a key for lead flashing. Upstand is formed of rolled steel sections including HOPE'S curb section, which combines an outside weathering flange with an internal condensation channel. See details on page 37.

Ventilators are horizontally pivoted on bronze cup pivots, and are prepared for operation by pole or cord. Opening gear may be fitted, either hand or electrically controlled.

*Finish.* All steelwork HOT-DIP GALVANIZED, despatched unpainted.

Glass as specified in estimate.

Putty for upstand supplied when we fix and glaze.

*When ordering please state:*

Whether fixing to asphalted concrete or wood curb. Type of glass required to roof and upstand. Full consigning address.

Method desired for operating ventilators:

- (a) *By spring catch for cords*
- (b) *By pole (supplied as an extra, state length required).*
- (c) *By HOPE'S portable rod gearing.*
- (d) *By HOPE'S shaft and lever gearing.*

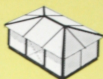
THE ABOVE PARTICULARS ARE ALSO REQUIRED WHEN ORDERING SKYLIGHTS, IGNORING UPSTANDS AND GEARING REFERENCES.



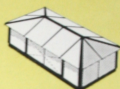
# HOPE'S *Standard* LANTERNS & SKYLIGHTS



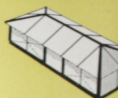
SL44 4' 0" x 4' 0"



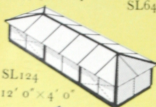
SL64 6' 0" x 4' 0"



SL84 8' 0" x 4' 0"



SL104 10' 0" x 4' 0"



SL124  
12' 0" x 4' 0"



SL66 6' 0" x 6' 0"



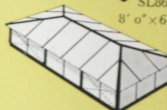
SL86  
8' 0" x 6' 0"



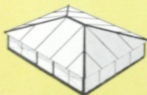
SL106  
10' 0" x 6' 0"



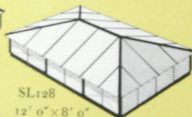
SL88 8' 0" x 8' 0"



SL126 12' 0" x 6' 0"



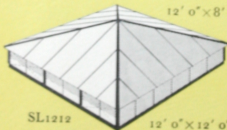
SL108 10' 0" x 8' 0"



SL128  
12' 0" x 8' 0"



SL1010  
10' 0" x 10' 0"



SL1212  
12' 0" x 12' 0"



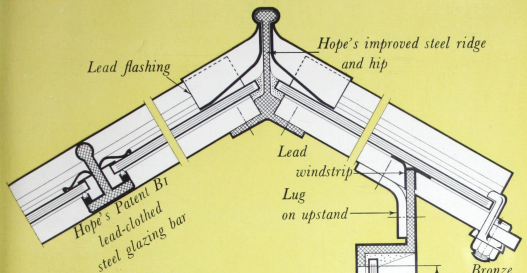
SL1210  
12' 0" x 10' 0"

Ventilators are fitted in each long side of lanterns as shown by dotted lines

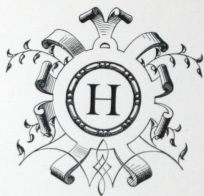
Skylights are as illustrated but without upstands; when ordering prefix "SS" when fixing to wood, and "SST" when fixing to concrete.



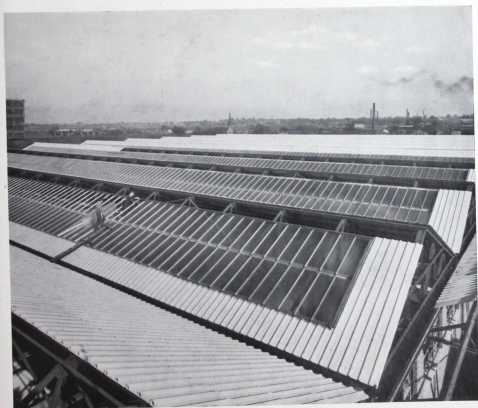
# Half Full Size Details



THESE DETAILS APPLY TO ALL  
HOPE'S STANDARD LANTERNS



# HOPE'S *ALUMINIUM* GLAZING BARS



New Assembly Shop for B.S.A. Co. Ltd. *Holland W. Hobbiss, F.R.I.B.A., Architect*

# HOPE'S *Aluminium*

## GLAZING BARS

There had been no reason for offering any alternative to our lead-clothed glazing bars until the serious shortage of lead and its excessively high price made it necessary for us to revive the experiments which had been in the hands of a committee appointed by the Patent Glazing trade as far back as 1936.

We ourselves produced a bar in 1938 and tried it on a limited scale, but we did not go on with it because it offered no advantage over our lead-clothed bars.

When lead became so scarce and expensive we took up the use of aluminium again, and we are now offering two series of bars illustrated on pages 42-45. These bars embody those principles which during over 50 years' experience we have found so necessary and so successful with our lead-clothed bars, and we offer them to our customers with confidence as a reliable alternative.

*The principals referred to can be stated:*

1. The bar must be rigid so as to afford the same strength as our lead-clothed bars, which have never been known to fail.
2. The glass must be bedded on plastic material and not on the bare edges of the metal.
3. The fixing at top and bottom must be positive and not liable to corrosion.
4. The glass must be supported by a substantial stop at the foot so that it will not slip.
5. The bar must be provided with a capping which will secure the glass in position without rattling and prevent the entry of driving snow, rain or silt.

The alloy used in our glazing bars is of the magnesium-silicon type (AW9B) and is recommended by the mills as a medium-strength alloy with fair resistance to corrosion.

Owing to the acute shortage of lead, our first range of aluminium glazing bars was provided with an aluminium cap made of a commercially pure aluminium sheet, which is highly resistant to corrosion and sufficiently flexible for dressing down on to the glass. It is secured by aluminium bolts and domed nuts, a method which provides positive securement *and does not depend on the permanence of "spring" or flexure in the metal cap*: on this account it is peculiarly suitable for vertical glazing.

These bars are made in two sizes: A for all spans up to 7' 6" and B for all spans up to 9' 0". *See details on pages 42 & 43.*

We have now produced a further range of aluminium bars with a lead wing or capping *incorporated in the bar*. This range is made in three sizes: AL for spans up to 7' 6", BL for spans up to 9' and CL for spans up to 10' 6". *See details on pages 44 & 45.*

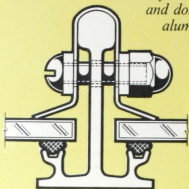
It has always been our custom to swage the top of our deep bars to enable the lead apron to be dressed over the bar, and this practice has again been followed with our aluminium bar, including the aluminium cap. This provides for fixing on a shallow ledge without interfering with overhanging slates or other material.

Aluminium bars should not be used in alkali works, and full particulars should be given of any unusual conditions so that we may advise the most suitable bar to be used.

It is not possible to guarantee the life of any aluminium glazing bar because there is insufficient experience of its behaviour over long periods, but we accept responsibility for any defect in design or workmanship.

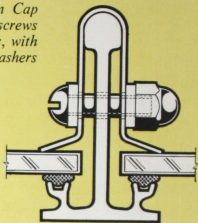
# HOPE'S *Aluminium*

*Continuous Aluminium Cap  
secured by aluminium screws  
and domed nuts, with  
aluminium washers*



**A Bar**

FOR SPANS  
UP TO 7' 6"



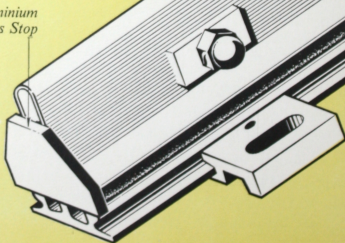
**B Bar**

FOR SPANS  
UP TO 9' 0"

*Full Size Sections*

*Fixing Details  
supplied on request*

*Aluminium  
Glass Stop*

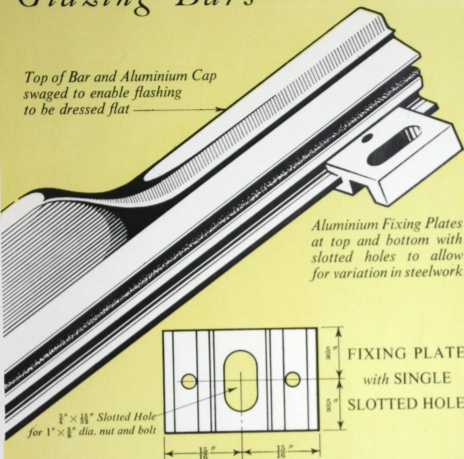




## Glazing Bars

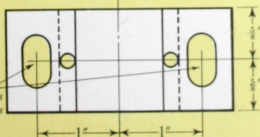
*Top of Bar and Aluminium Cap  
swaged to enable flashing  
to be dressed flat —————→*

*Aluminium Fixing Plates  
at top and bottom with  
slotted holes to allow  
for variation in steelwork*



$\frac{1}{4}'' \times \frac{11}{16}''$  Slotted Hole  
for  $1'' \times \frac{1}{4}''$  dia. nut and bolt

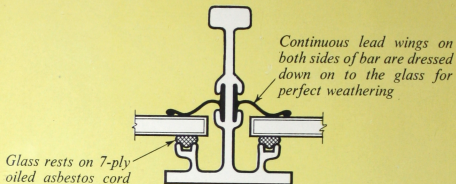
FIXING PLATE  
with SINGLE  
SLOTTED HOLE



2:  $\frac{31}{32}$ "  $\times$   $\frac{11}{16}$ " Slotted Holes  
for  $1\frac{1}{2}$ "  $\times$   $\frac{1}{8}$ " nuts and bolts

FIXING PLATE  
with TWO  
SLOTTED HOLES

# HOPE'S *Aluminium Glazing*



## **AL Bar**

FOR SPANS UP TO 7' 6"

*Full Size Section*

*Substantial  
Aluminium Glass Stop*

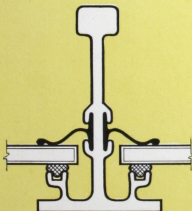
This perspective view shows the AL Bar installed in a window frame. The bar is a long, extruded aluminium profile with a T-shaped cross-section. It is secured to the frame with a large bolt and nut. The glass pane is held in place by the bar's wings and the glass stop. The entire assembly is shown in a three-quarter view, highlighting its depth and how it fits into the frame.

# Bars with Lead Wings

*Top of Bar swaged to enable  
flashing to be dressed flat*

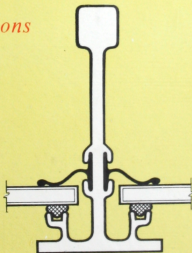
**FIXING PLATES**  
*with single or double holes  
are available for fixing to  
steelwork*

*Full Size Sections*



**BL Bar**

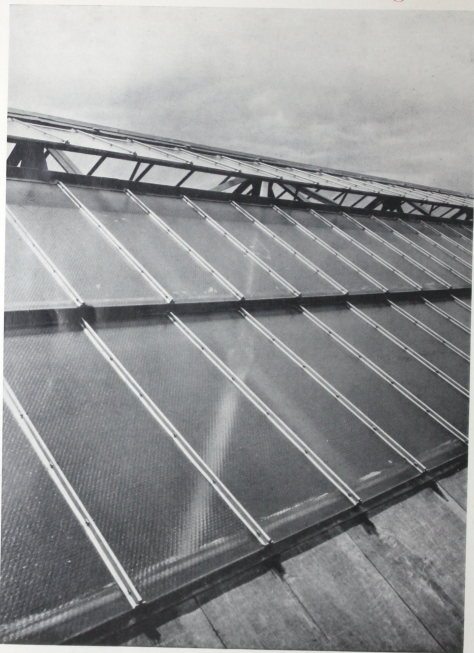
FOR SPANS UP TO 9' 0"



**CL Bar**

FOR SPANS UP TO 10' 6"

# HOPE'S *Aluminium Glazing Bars*



JAMES ARCHDALE & CO. LTD., BLACKPOLE, *near* WORCESTER  
C. F. LAWLEY HARROD, F.I.A.A., A.M.I.C.E., ARCHITECT



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